National Park Service
U.S. Department of the Interior

Natural Resource Information Division
Denver, Colorado

Views of the National Park Service

An Interactive Interpretation and Education Program

Tonto

National Monument

Tonto National Monument
Arizona
National Park Service
U.S. Department of the Interior

Upper Cliff Dwellings Walk

Welcome to the Upper Cliff Dwellings Walk at Tonto National Monument!

This walk will take you through an amazing collection of ecosystems on your way to the Upper Cliff Dwellings where the Salado lived in the 1300s and 1400s. The walk starts in a lush riparian zone fed by an intermittent stream. The riparian area gives way to patches of mesquite as the stream disappeared underground. Climbing out of the valley and up the side of the hill will bring you out into the upper reaches of the Sonoran Desert, home of such unique plants as the mighty Saguaro cactus, the Sotol, and the Agave. Along the way you will be able to learn about these ecosystems, the geology and hydrology of the area, and the Salado who depended upon these different ecosystems.

Views of the National Park Service

An Interactive Interpretation and Education Program

Natural Resource Information Division
Denver, Colorado

Produced by the Synthesis Project
National Park Service

U.S. Department of the Interior
Washington, DC

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Systems of Planet Earth -

Paleontology

Virtual Knowledge Center

Virtual Experiences & Knowledge Centers
Synthesis IMS Project
National Park Service
U.S. Department of the Interior

Geologic Rock Units Relevant to Fossil Records

Time Being Shown:
(click on the timeline to show a new time)

Pliocene

Click on:
... to visit the site.
... to learn about the time period.

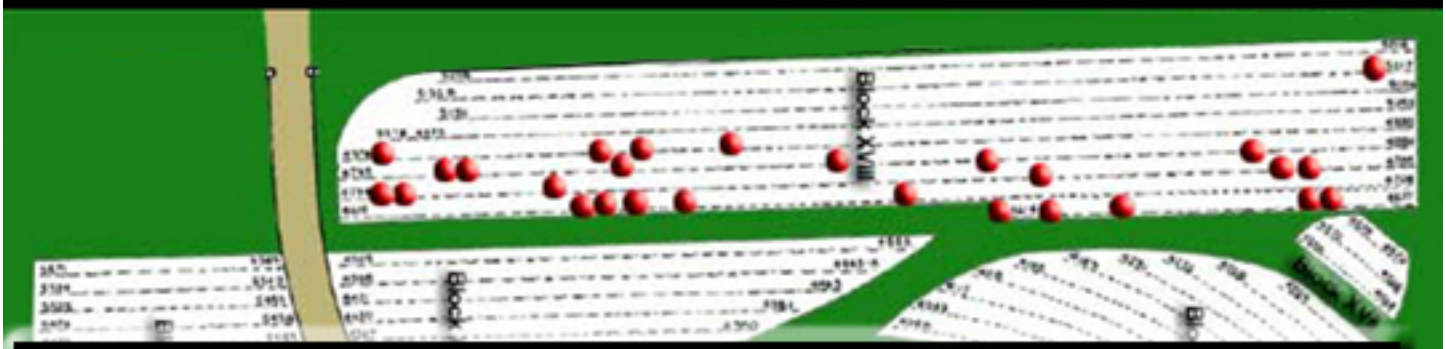
Paleocene | Eocene | Oligocene | Miocene | Pliocene | Pleistocene | Holocene

Hagerman Fossil Beds NM

Contents

Poplar Grove National Cemetery

Cemetery Map



The Siege of Petersburg

Poplar Grove National Cemetery

Petersburg National Battlefield
Virginia
National Park Service
U.S. Department of the Interior

William E. Ferrin

Images

- Portrait
- Muster Sheet
- Inventory List
- Death Certification
- Grave Stone

Written Accounts

- Letter to his sister

William E. Ferrin lived in Pittsford, New Yo
children, the youngest of who was born in
originally enlisted in the 108th New York In
Volunteer SharpShooters. William never m
The letter he had written was used as part
money home. William is buried in grave 16

? · † · Back to History

A letter to his sister Sarah (Sati)

n 30th, 1863. Miss S A Ferrin. Pittford, Monro

ister Sati

have a few minutes to spare before going on gu
that the long looked for green backs have
was due us, I have been in over 5 months ar
($43.73) and I had to pay five dollars more
k again for the contractors have been trying
hat we get it back again if it is a poccible th
ucceed I think - Capt Gray planed this cbe
to pay him the extry five dollars but Capt S
o save the money and he is going to hang
ning is made strait - I took a globe sighted
5.00 the others cost $45, about 20 of us to
s the others only they have no telescope o
more pay in March ($26.00) I want to buy
hill and three dollars to Father and that will
send more homebut that mortgage must
and tear my signature off of it in a short or
will be a general jollification in camp for the
ys will fool away all of their money and if y
proud that your Brother was a temperance m

Views of the National Park Service

Created in the Spring of 2000 to portray National Park Service information and messages in an educational and interactive form. This project is intended to help interpret the stories of the National Park System and allow the public access to any site of interest.

Purpose

The overall goal of *Views of the National Park Service* (Views) is to provide the National Park Service with a powerful interactive tool for the enhancement of interpretation and education programs. Major objectives of the project include:

- ∞ Highlight inherent connections between National Park Service (NPS) units and servicewide themes covered in the knowledge centers.
- ∞ Provide NPS-based educational experiences to a broad range of audiences by creating a product that can be used in classrooms, visitor centers, and on the internet.
- ∞ Explore natural and cultural issues affecting NPS units in an entertaining system.
- ∞ Provide a modular framework that can accommodate servicewide and park-specific information, and allow components developed across the Service to complement each other.

History

Providing information effectively to NPS staff, the public, and its partners is vital to the NPS mission. Data and information must be collected, transferred to standard digital formats, and then organized in some manner. Many NPS units are using the Synthesis Information Management System software to organize and disseminate their information. While working with park staff on the Synthesis Project, the development team and park interpreters/educators identified the need to take the Synthesis-based information and repackage it in a format appropriate for school children and the public.

Overview

The system consists of two complementary components. The first of these, knowledge centers, presents general information and principles on a variety of natural and cultural resource topics. These knowledge centers are linked with park-specific case studies. The second component is a series of virtual experiences which provides multimedia gateways to park-based educational experiences.

The purpose of the knowledge centers is to supply enough background material so users can enjoy and appreciate the park-specific components of the system. Knowledge centers focus on servicewide themes and issues, from invasive species to volcanism.

Virtual experiences are specific to an individual NPS unit. They will help park interpreters and education specialists reach a greater number of people, including park visitors that do not have time to take a ranger-led tour, students in classrooms (local and distant), handicapped visitors who can not reach remote park sites, or members of the public unable to visit the park. The virtual experiences also allow interpreters and educational specialists to recreate historical natural and cultural landscapes. The ability to experience vanished landscapes will provide new understanding of the past.

Staff in the WASO-Natural Resource Information Division (NRID) coordinates the project. To ensure high-quality information, subject matter experts from WASO divisions, central offices, and park units are recruited to help design and build the knowledge centers and park-based sub-modules. All virtual experiences and park-based units are designed by park staff and then built by NRID. The project philosophy is that park educators, interpreters, and resource staff should select the material, the stories, and the best methods for presenting information from their park. This ensures park buy-in, bolsters WASO-park cooperation, and prevents duplication with existing park-based interpretive tools.

For a preview of *Views of the NPS*, visit the Natural Resources Intranet site at:
http://www2.nrintra.nps.gov/synthesis/views

Collection of images from Petersburg National Battlefield virtual experience.

Main menu page of the Volcanism knowledge center showing themes that a user can explore.

Within the Volcanism knowledge center a user can explore individual NPS units with volcanic features.

Knowledge Centers

The foundation of the National Park System is built upon a collection of themes found throughout the entire system. A tapestry of ecosystems can be explored in through the National Parks, each providing its own story about the natural world found on this planet. Knowledge centers provide a means to explore these themes and see how the units of the National Park Service fit together to educate people.

Purpose

The knowledge centers found within the *Views of the National Park Service* program provide information on the broad issues and topics that are important across the entire National Park System.

The main goals of the knowledge centers are:

∞ Supply the necessary background information in science and history that will allow people to better understand issues that affect the entire NPS.

∞ Illustrate resource themes common across NPS units.

∞ Provide teachers with educational material that will compliment their lesson plans while introducing students to the National Park System.

Knowledge Base

The knowledge centers are being developed to introduce and educate people on service-wide themes. These themes cover a wide variety of topics, such as invasive species, paleontology, volcanism, resource management and protection, and ecosystems. NPS units are used as case studies to enhance the understanding of these themes and provide illustrative examples. Experts within each field are active partners in the development of the knowledge centers. Greg McDonald, the Paleontologist in the Geologic Resources Division, has developed the outline for the Paleontology knowledge center. Jim Wood, a Physical Scientist in the Geologic Resources Division, has been involved with Paleontology, Volcanism, and Cave and Karst knowledge centers. Data have been gathered from other government agencies such as the United States Geologic Survey, the National Oceanic and Atmospheric Administration, and National Aeronautics and Space Administration.

Park Connections

Using knowledge centers, people will learn that the NPS is a collection of interrelated units. Through the creation of a Paleontology Knowledge Center, any NPS unit that has fossils can tap into the knowledge center to provide basic information about fossils. Knowledge centers eliminate the need for every paleontological park to repeat basic information. Parks are given more time and freedom to focus on the specific information for their unit. In this way, people learn how fossils resources in different parks are connected, yet at the same time how each resource is unique and has its own story to tell.

Education Values and Uses

Teachers will be able to bring National Parks into the classrooms via the knowledge centers. They will be able to supplement established lesson plans and give students the chance to investigate topics like the hydrologic cycle and volcanism, rather than simply reading about them. Teachers will then be able to use parks as specific case studies to enhance studentsí understanding of these issues. In this way, a teacher can introduce the concepts of invasive species to his or her class, augment the material with a student-run exercise from the Invasive Species knowledge center, then finally see real-life examples and management options for invasive species in the Pu uhonua o Honaunau National Historic Park case study. Each knowledge center will have a *Challenge Your Understanding* learning section at the end where users can be tested on what they learned. Knowledge centers will provide access to information and experiences that would be difficult to otherwise provide. For example, with the Ecosystems and Biomes knowledge center, a teacher in Iowa can let

This image from the Hydrologic Cycle knowledge center depicts the process virtually and gives a brief overview.

his or her class investigate the temperate rainforests of Olympic NP, the tidal pools of Channel Islands NP, the icy waters of Kenai Fjords NP, or the unique ecology of the Sonoran Desert at Tonto NM or Saguaro NP.

Status and Direction

Eight knowledge centers are currently being developed covering a wide spectrum of natural resource topics. A great many more are possible in both the natural and cultural arenas. Currently, the knowledge centers fall into four natural resource categories: The geosphere, the hydrosphere, the atmosphere, and the biosphere.

The Geosphere

Volcanism Fall 2001
Learn about the formation and behavior of the types of volcanoes in National Parks. The National Park Service manages many units with an array of volcanic history and current activity.

Paleonotology Fall 2001
The history of the planet stretches far beyond manís existence, and even beyond to periods of time when dinosaurs walked the earth to a time when life was confined to the sea. The geologic and paleontologic resources of our National Parks provides a foundation for studying and preserving pieces of the past.

Caves and Karst Spring 2002
Karst topography is home to many unique features like sinkholes, disappearing streams, and caves. This landscapeís susceptibility to human impacts creates major management and resource protection issues in the Park Service.

The Hydrosphere

Hydrologic Cycle Fall 2001
The Hydrologic Cycle affects the entire planet and is vital to supporting life. The National Parks cover many different features directly impacted from the Hydrologic cycle including rivers, lakes, alpine drainage basins, glaciers, and oceans.

Glaciers Fall 2001
The dominant landscaping tool of the planet, glaciers cross all natural boundaries. They are controlled by changes in the atmosphere, are features of the hydrosphere, and sculpt the geosphere. Kenai Fjords and Yosemite valley are two such landscapes sculpted by glaciers.

The Atmosphere

Weather Fall 2001
Weather can affect current conditions of a park, being both a hazard and a spectacle. Weather and precipitation also have played a vital role in carving the landscapes of many of our natural treasures.

The Biosphere

Ecosystems Fall 2001
The National Park Service protects the nationís most unique resources, including the wide range of ecosystems found in this country. Deserts, temperate rainforests, chaparral shrubland, and boreal forests are some of the wonders that can be enjoyed in National Parks.

Invasive Species Spring 2002
The introduction of non-native species into an ecosystem can have profound negative impacts. The management and prevention of non-native species for spreading is an major issue across the entire nation.

Virtual Experiences

Allow park staff to carry their message out to a greater audience. Virtual experiences can take a person to the site, immerse them in any interpretive story they want to learn about, and make connections to other NPS units.

Purpose

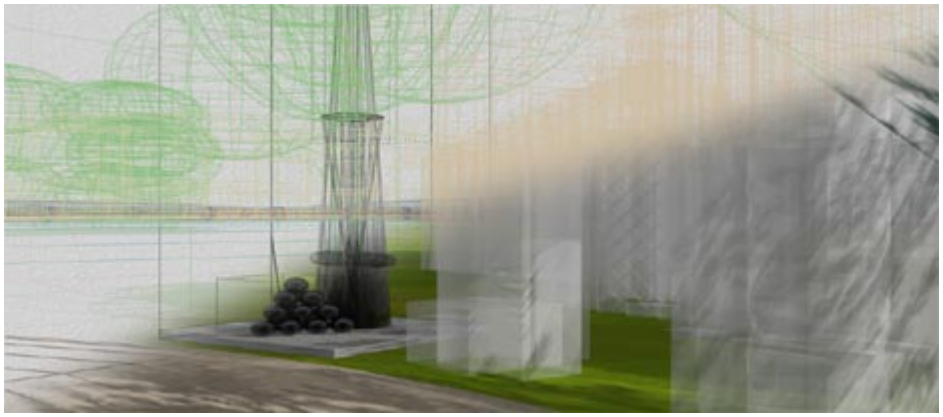
There is a proverb that reads: *Tell me, I will forget. Teach me, I will remember. Involve me, I will understand*. The virtual experiences were created with the intention of providing an interactive resource for educators in the National Park Service. Each park is unique in its cultural and natural history, as well as in the present-day management issues that affect the park resources. The virtual experiences are designed to cross the boundaries between natural and cultural resources, and integrate history and science to create a multi-dimensional approach to educating people about the National Parks. Virtual experiences bring to life in parks the concepts covered in the knowledge centers.

Explaining the Experience

A visitor to the virtual experience of Petersburg National Battlefield will lead himself through the history of the park, learning many facts about the Civil War, from battles and artillery, to people and places. At the battlefield in Virginia, a forest now stands where brave soldiers fought on open fields in the 1860s. This makes it difficult for visitors to visualize the location of enemy lines and understand why cannons now stand aimed at dense stands of trees. In the Petersburg virtual experience, a portion of the battlefield was re-created digitally as it would have looked at the time of the battle, through the use of historical maps and photos, and the latest technology. With the trees removed, visitors can get an accuracte feel for the battle scene, understand the location of forts, and maybe save a real tree or two.

At Tonto National Monument in Arizona, a large lake sits in the viewshed of the Upper Cliff Dwellings constructed by the Salado. When these Native Americans were living there in the 1300s, the Salt River was free-flowing. In the virtual experience of Tonto NM, the river will be digitally returned to itís former freedom, to give the picture of the resource as the Native Americans would have known it.

In Hawaii, Pu uhonua o Honaunau(PUHO) National Historic Park is a stop for many tour busses. Generally, visitors are given only 15 or 30 minutes at the park. They take park brochures, look at the reconstructed temples and canoes, and take a few pictures - sadly never seeing the landscapes and historical sites that lie on the nearby 1871 Trail. The virtual experience of Pu uhonua O Honaunau NHP will integrate the re-creations of the village and Place of Refuge with the remains of villages as seen from the 1871 Trail. Providing a juxtapostition of past and present visitors can gain a greater appreciation for the cultural heritage of the park. Through the virtual experience of PUHO, visitors can link to the Ecosystems knowledege center to learn about the critical habitat for the endangered sea turtles at PUHO, or to the Invasive Species knowledge center to



Using 3D rendering programs, historic landscapes can be re-created and brought back to life to immerse people in the area as it once appeared.

The Petersburg National Battlefield virtual experience allows users to tour a virtual re-creation of City Point, the supply depot and railroad hub of the Union Army, and explore the interior of the cabin of General Grant.

discover another major resource issue that affects the park.

Experience Expertise

The virtual experiences are interactive modules designed by park resource managers, interpreters, and educators; and supported by the technical expertise of the Natural Resource Information Division and other subject matter experts. The process of building the virtual experience begins with an idea, usually from park interpreters, about how to better connect visitors with the park. The technology makes the idea real by providing tools such as digital renderings, interactive maps, panoramic photos, sound clips, images, and text ñ all in a stimulating interface. The user can guide him or herself through the site, selecting the items of interest and becoming better educated while having fun.

Status and Direction

Currently, there are virtual experiences in progress for five NPS units: Petersburg National Battlefield in Virginia, Tonto National Monument in Arizona, Hagerman Fossil Beds National Monument in Idaho, Timpanogos Cave National Monument in Utah, and Pu uhonua o Honaunau National Historic Park in Hawaii. The Petersburg virtual experience was developed starting in 2000 and serves as the prototype for creating and honing techniques. This project will be expanded using Challenge Cost Share funds received in FY01 (in cooperation with James Madison University and Petersburg NB). The virtual experience of Timpanogoes Cave will be completed in the summer of 2001, while Hagerman Fossil Beds, Tonto, and Pu uhonua o Honaunau are expected to be completed in 2002. Other parks have expressed interest in creating virtual experiences, but they are still in the brainstorming stages. As information and technology are fields of constant change, the virtual experiences should also be continually growing and evolving.

Future Direction

There is nothing like a dream to create the future.
- Victor Hugo

Plans

Plans are currently being developed to test the Petersburg Virtual Experience in local and distant classrooms, as well as placing the information in a visitor center kiosk. The geologic knowledge centers will be taken to classrooms for testing with various age groups and also placed in the geologic portion of NatureNet.

Knowledge Centers

Below is a list of potential knowledge centers that may be developed, depending on need by park staff, funding, and available expertise.

Geosphere
- Earthquakes
- Interior of the Earth
- Mass Movement
- Plate Tectonics
- Rocks and Minerals
- Soils
- Weathering and Erosion

Hydrosphere
- Rivers and Lakes
- Basics of Water
- Groundwater
- Oceans

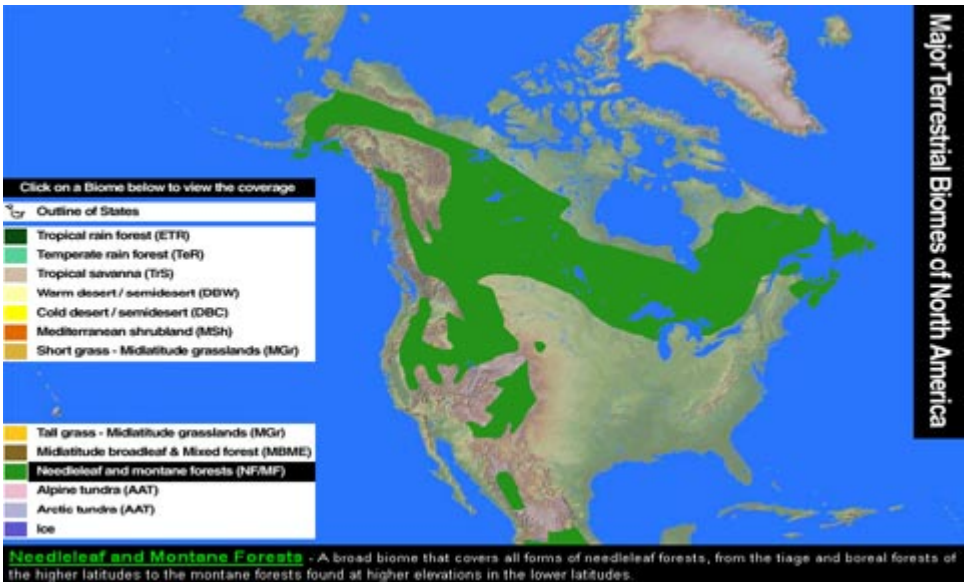
Atmosphere
- Atmospheric Composition
- Climate Regimes
- Clouds

Biosphere
- Animals
- Food Webs
- Plants

Cultural Resources
- Civil War Overview
- Afro-American Experience in Civil War
- Famous Americans
- Korean War Overview
- Native American Cultures
- Revolutionary War Overview
- Underground Railroad
- Vietnam War Overview
- World War I Overview
- World War II Overview
- Lewis and Clark Expedition

Human-Environment Impacts
- Governing Legislation
- Introduction to the NPS
- Impacts on the environment
- Resource Management and Protection
- Remote Sensing
- Geographic Information Systems (GIS)

From this map of the major biomes of North America users will be able to access detailed information regarding each biome. Users can also discover ecology of the NPS units within each biome.



The main interface of *Views of the National Park Service* allows users to explore both knowledge centers and virtual experiences at their own leisure.

Virtual Experiences

NPS units potentially interested in creating virtual experiences.

∞ ***Kenai Fjords*** - develop a virtual kayaking trip to give people a chance to enrich their experience of the park.

∞ ***Hagerman Fossils Beds*** - help develop a virtual experience that will help bring the park into classrooms as a major resource on the Pliocene and fossils.

∞ ***Florissant Fossil Beds*** - develop a virtual quarry to allow people a chance to learn how paleontologists uncover fossils while also learning about the fossils found at Florrisant.

∞ ***Fort Bowie*** - a virtual reconstruction of the fort and its natural environment to show what the area was like during the Indian Wars and contrast it with what is currently on-site.

∞ ***Nez Perce*** - a virtual experience to delve into both the Nez Perce culture and how they aided Lewis and Clark on their expedition to the Pacific Ocean.

∞ ***Manzanar*** - a virtual reconstruction of the old Japanese interment camp that was used during World War II.

∞ ***Bent s Old Fort*** - a virtual experience of the role this site played in both the Santa Fe trail, as well as relations with Native Americans. Also explore the issue of invasive species and their impact on the local environment.

∞ ***Valley Forge*** - a virtual experience of this famous site where General Washington and the Continental Army suffered the harsh winters during the Revolutionary War.

∞ ***NPS Southeast Regional Office*** - re-creations of Civil War battlefields as part of the coming 150-year anniversary of the war. This effort would be patterned after, and complimentary to the Petersburg virtual experience.

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